

Effectiveness of a Structured Nurse-Led Cardiac Rehabilitation Education Programme on Knowledge Regarding Coronary Artery Disease among Patients Attending Selected Hospitals of Dahod District: A Pilot Study

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Abstract

Background

Coronary artery disease (CAD) is one of the leading causes of morbidity and mortality worldwide. Patient education and cardiac rehabilitation are essential components of secondary prevention that help reduce disease progression and improve quality of life. Nurses play a significant role in educating patients regarding risk-factor modification, medication adherence, dietary management, and lifestyle changes. Before implementing a large-scale study, it is important to evaluate the feasibility and effectiveness of the intervention through a pilot study.

Objectives

To assess the effectiveness of a structured nurse-led cardiac rehabilitation education programme on knowledge regarding coronary artery disease among patients attending selected hospitals in Dahod District.

Methodology

A quantitative evaluative approach using a pre-experimental one-group pre-test and post-test design was adopted. Thirty coronary artery disease patients were selected through purposive sampling. Data were collected using a structured knowledge questionnaire. Following the pre-test assessment, a nurse-led cardiac rehabilitation education programme was administered. A post-test was conducted after seven days. Descriptive and inferential statistics were used for data analysis.

Results

The pre-test findings revealed that 56.7% of participants had poor knowledge and 43.3% had average knowledge regarding cardiac rehabilitation. Following the intervention, 73.3% demonstrated good knowledge and 26.7% showed average knowledge. The calculated paired t-test value indicated a statistically significant improvement in knowledge scores ($p < 0.05$), confirming the effectiveness of the programme.

Conclusion

The pilot study demonstrated that the nurse-led cardiac rehabilitation education programme effectively improved patients' knowledge regarding coronary artery disease and cardiac rehabilitation. The findings supported the feasibility of conducting the main study on a larger sample.

INTRODUCTION

Coronary artery disease (CAD) is a major cardiovascular disorder characterized by narrowing of the coronary arteries due to atherosclerosis. It remains one of the foremost causes of premature mortality, disability, and healthcare expenditure across the world. According to global health reports, cardiovascular diseases account for nearly 17.9 million deaths annually, with coronary artery disease contributing significantly to this burden.

In India, the prevalence of coronary artery disease has increased considerably over the past few decades due to changing lifestyles, urbanization, unhealthy dietary habits, physical inactivity, tobacco use, obesity, hypertension, and diabetes mellitus. The growing burden of CAD has created substantial challenges for healthcare systems, particularly in rural and semi-urban areas where awareness regarding prevention and management remains inadequate.

Cardiac rehabilitation is a comprehensive intervention that includes patient education, exercise training, risk-factor management, psychological support, dietary counseling, and medication adherence strategies. Numerous studies have demonstrated that participation in cardiac rehabilitation programmes reduces recurrent cardiac events, improves functional capacity, and enhances quality of life among cardiac patients.

Patient knowledge is a crucial determinant of successful disease management. Many patients diagnosed with coronary artery disease possess limited understanding regarding disease pathology, warning signs, risk factors, treatment options, and preventive measures. Inadequate knowledge often contributes to poor adherence to treatment recommendations and unhealthy lifestyle practices.

Nurses are uniquely positioned to provide effective education and counseling because of their continuous interaction with patients throughout the treatment process. Structured nurse-led educational interventions have been shown to improve patient knowledge, self-care practices, and long-term health outcomes.

Prior to conducting a large-scale investigation, a pilot study is necessary to determine the feasibility of research procedures, assess the reliability of data collection tools, and evaluate the preliminary effectiveness of the intervention. Therefore, the present pilot study was undertaken to assess the effectiveness of a structured nurse-led cardiac rehabilitation education programme among coronary artery disease patients attending selected hospitals of Dahod District.

Objectives

1. To assess the pre-test level of knowledge regarding coronary artery disease and cardiac rehabilitation among patients.
2. To assess the post-test level of knowledge regarding coronary artery disease and cardiac rehabilitation among patients.
3. To determine the effectiveness of the structured nurse-led cardiac rehabilitation education programme.
4. To determine the association between pre-test knowledge scores and selected demographic variables.
5. To assess the feasibility of conducting the main study.

METHODOLOGY

A quantitative evaluative research approach was adopted for the pilot study. A pre-experimental one-group pre-test and post-test research design was utilized to assess the effectiveness of the educational intervention. The study was conducted in selected hospitals of Dahod District, Gujarat.

The target population consisted of patients diagnosed with coronary artery disease who were attending outpatient and inpatient cardiac services. A sample of 30 patients was selected using a non-probability purposive sampling technique.

Patients diagnosed with coronary artery disease, willing to participate, and available during data collection were included in the study. Patients with severe complications, cognitive impairment, or communication difficulties were excluded.

The research instrument consisted of three sections. Section A included socio-demographic variables such as age, gender, religion, educational status, occupation, monthly income, family type, marital

status, residence, and tobacco use. Section B comprised a structured knowledge questionnaire related to coronary artery disease, risk factors, signs and symptoms, treatment modalities, medication management, physical exercise, dietary modification, and lifestyle changes. Section C included educational assessment items related to cardiac rehabilitation practices.

Content validity of the tool was established by experts in cardiology, medical-surgical nursing, and research methodology. Reliability testing revealed satisfactory internal consistency with a reliability coefficient of 0.84.

Following administrative permission and informed consent, a pre-test assessment was conducted. Subsequently, the structured nurse-led cardiac rehabilitation education programme was delivered through lectures, PowerPoint presentations, demonstrations, educational pamphlets, counseling sessions, and interactive discussions. The educational programme covered disease pathology, risk factors, medication adherence, dietary recommendations, smoking cessation, stress management, physical activity, and rehabilitation strategies.

A post-test was conducted seven days after the intervention using the same questionnaire. Ethical principles including confidentiality, anonymity, informed consent, and voluntary participation were maintained throughout the study.

Data were analyzed using descriptive statistics such as frequency, percentage, mean, and standard deviation. Inferential statistics including paired t-test and Chi-square test were used to assess programme effectiveness and associations between demographic variables and knowledge scores.

RESULTS

The collected data were organized, coded, tabulated, and analyzed according to the objectives of the pilot study. The findings are presented under the following sections.

Section I: Distribution of Participants According to Demographic Variables

Among the 30 participants, the majority were male (66.7%), belonged to the age group of 21–30 years (56.7%), and had primary or secondary education. Most participants reported a history of tobacco use and belonged to low-income households.

Table 1: Demographic Characteristics of Participants (N=30)

Variable	Frequency	Percentage
Male	20	66.7
Female	10	33.3
Primary Education	12	40.0
Secondary Education	8	26.7
Tobacco Use	22	73.3
Non-Tobacco Use	8	26.7

Section II: Pre-Test Knowledge Level Regarding Cardiac Rehabilitation

Table 2: Pre-Test Knowledge Level

Knowledge Level	Frequency	Percentage
Poor	17	56.7

Average	13	43.3
Good	0	0
Total	30	100

The findings indicated inadequate baseline knowledge regarding cardiac rehabilitation among coronary artery disease patients.

Section III: Post-Test Knowledge Level Regarding Cardiac Rehabilitation

Table 3: Post-Test Knowledge Level

Knowledge Level	Frequency	Percentage
Poor	0	0
Average	8	26.7
Good	22	73.3
Total	30	100

A substantial improvement in knowledge levels was observed following the educational intervention.

Section IV: Effectiveness of Structured Nurse-Led Cardiac Rehabilitation Education Programme

Table 4: Comparison of Pre-Test and Post-Test Knowledge Scores

Test	Mean	SD	Mean Difference	t-value	p-value
Pre-test	11.43	3.12			
Post-test	22.18	2.65	10.75	8.64	<0.05

The calculated paired t-value demonstrated a statistically significant increase in post-test knowledge scores, indicating that the educational programme was effective.

Section V: Association between Pre-Test Knowledge Scores and Demographic Variables

A statistically significant association was observed between educational status and pre-test knowledge scores ($p < 0.05$). No significant association was found with age, gender, occupation, income, family type, residence, marital status, or tobacco use.

DISCUSSION

The pilot study was conducted to evaluate the effectiveness and feasibility of a structured nurse-led cardiac rehabilitation education programme among coronary

artery disease patients. The findings revealed that the majority of participants possessed inadequate knowledge regarding disease prevention, risk-factor modification, and rehabilitation prior to the intervention.

The post-test results demonstrated a significant improvement in knowledge scores following the educational programme. These findings support previous studies that reported positive effects of structured educational interventions on patient awareness and self-care behaviors.

Educational status was significantly associated with baseline knowledge, suggesting that literacy influences patients' understanding of disease management. Patients with higher educational attainment demonstrated better awareness regarding coronary artery disease and rehabilitation practices.

The pilot study confirmed the feasibility of participant recruitment, data collection procedures, educational materials, and follow-up assessments. Participants actively engaged in the educational sessions and expressed satisfaction with the programme content.

Overall, the study findings indicate that nurse-led educational interventions are effective strategies for improving patient knowledge and can contribute to better cardiovascular outcomes.

CONCLUSION

The pilot study concluded that coronary artery disease patients had inadequate baseline knowledge regarding cardiac rehabilitation. The structured nurse-led cardiac rehabilitation education programme significantly improved patients' knowledge levels. The findings support the feasibility of conducting the main study with a larger sample and highlight the importance of integrating educational interventions into routine cardiac care services.

Conflict of Interest

The authors declare that there is no conflict of interest related to this study.

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